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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

MENON, KRISHNAN S

ART UNIT PAPER NUMBER

1723

DATE MAILED: 09/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/706,168

Applicant(s)

ALLEN ET AL.

Examiner

Krishnan S Menon

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 November 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) 35 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 2/20/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-34, drawn to process of removing suspended matter from wastewater, classified in class 210, subclass 723.
- II. Claim 35, drawn to animal food, classified in class 426, subclass 635.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the different inventions are not disclosed as capable of use together, and have different modes of operation, functions and effects.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and the search required for Group II is not required for Group I, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

During a telephone conversation with Angelo Bufalino on 8/23/04 a provisional election was made without traverse to prosecute the invention of group I, claims 1-34. Affirmation of this election must be made by applicant in replying to this Office action. Claim 35 withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-34 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The terms:

a specific definable and controllable size and weight (claims 1, 21, 24, 32)

controllable molecular weight (claim 9)

low molecular weight (claim 11)

known molecular weight and size (claims 1, 12, 21)

relative tight distribution (claim 15)

are relative terms which render the claims indefinite. These terms are not defined by the claims, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1,2,3,7-15 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Bladden et al (US 5,560,831).

Claim 1: Bladden teaches a method of removing suspended and dissolved material from a fruit and vegetable wastewater (col 1 lines 7-16) comprising adding a coagulant polymer to form coagulant particles (col 5 lines 40-50), synthetic organic polymer having known molecular weight and size (col 6 lines 1-18; ref uses same material as applicant), and filtering (col 3 lines 7-15); the solid particles have controllable and definable size and weight – inherent. Under the principles of inherency, if a prior art device, in its normal and usual operation, would necessarily perform the method claimed, then the method claimed will be considered to be anticipated by the prior art device. When the prior art device is

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the same as a device described in the specification for carrying out the claimed method, it can be assumed the device will inherently perform the claimed process. In re King, 801 F.2d 1324, 231 USPQ 136 (Fed. Cir. 1986).

Claims 2 and 3: Coagulant is aluminum (+3) compounds (col 5 lines 40-50)

Claim 7: acidity and basicity of the polymer depend on pH – inherent, applicant uses the same chemicals as in the reference – In re King.

Claim 8: coagulant added between 50 – 200 ppm (col 5 lines 60-67)

Claim 9: Controlled mol weight cation – inherent, chemicals same as in the reference – In re King

Claim 10: DADMAD, acrylamide, etc – col 6 lines 1-18

Claims 11, 12: controlled mol weight and backbone of known mol weight – inherent, chemicals same as in ref – In re King. Applicant does not specify the molecular weight etc. The chemicals in the reference inherently have their own molecular weights.

Claim 13: ratio of polymer to coagulant is from 5:1 to 25:1 – see col 5 line 60 – col 6 line 18.

Claim 14: synthetic organic polymer from 10-50 ppm – col 6 lines 1-18

Claim 15: dwell time – a process inherently has a dwell time; also the reference has the same process.

Claim 19: adjust pH – col 6 lines 40-51

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 5,6, 16 and 21-23 rejected under 35 U.S.C. 103(a) as being unpatentable over Bladden et al (US 5,560,831).

Bladden teaches all the limitations of claim 1.

Claims 5 and 6 add the further limitations of coagulant being added on the basis of TSS, BOD and COD; and the amount is determined by the equation presented. Bladden does not teach such details. However, it would be obvious to one of ordinary skill in the art at the time of invention that the amount of coagulant to be added depend on the concentration of the waste materials in the fluid to be treated, and can be optimized; COD,BOD and TSS being just the ways of expressing the concentration. Discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art. In re Boesch and Slaney, 205 USPQ 215 (CCPA 1980); In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977); In re Aller, 42 CCPA 824, 220 F.2d 454, 105 USPQ 233 (1955).

Claim 16 adds the further limitation of dwell time between 5 and 30 minutes, which is also optimizable depending on the process flow rate and the concentration of the contaminants – In re Boesch and Slaney.

Independent Claim 21 adds, over claim 1, the further limitations of continuous process (see fig 1), the equation for determining the amount of coagulant (optimizable – In re Boesch and Slaney), molecular weight of polymer and specific definable controllable particle size are inherent in the ref (applicants use the same chemicals in the same process), ratio of coagulant to polymer 5:1 – 25:1 (col 5 line 60 – col 6 line 18).

Claim 22: aluminum +3 – col 5 lines 40-50

Claim 23: DADMAC, etc – col 6 lines 1-18.

2. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bladden et al (US 5,560,831) in view of Carlson et al (US 5,451,326)

Bladden teaches all the limitations of claim 2. Claim 4 adds the further limitation of ferric chloride or sulfate as the coagulant, which is not taught by Bladden. Carlson teaches use of Al<sup>+3</sup> or Fe<sup>+3</sup> salts as coagulants for treating food processing wastewater. It would be obvious to one of ordinary skill in the art at the time of invention to use the teaching of Carlson in the teaching of Bladden because Carlson teaches that the Al or Fe salts as equivalents for the coagulation process (see col 6 lines 24-30).



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3. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bladden et al (US 5,560,831) in view of Rawlings et al (US 4,144,355)

Bladden teaches all the limitations of claim 19. Claim 20 adds the further limitation of adjusting pH with MgO, which Bladden does not teach. Rawlings teaches adjusting pH with alkali or alkali earth metal hydroxides (Mg-hydroxide is alkali earth metal hydroxide) as equivalent. It would be obvious to one of ordinary skill in the art at the time of invention to use the teaching of Rawlings in the teaching of Bladden to adjust the pH for the formation of a gel containing the suspended solids Rawlings (col 3 lines 21-37).

4. Claims 17, 18, 24-34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bladden et al (US 5,560,831) in view of Golden (US 2002/0003112 A1)

Bladden teaches all the limitations of claim 1.

Claims 17 and 18 add polypropylene filter membrane and the flow from outside-in for the membrane, which is not taught by Bladden. Golden teaches polypropylene membrane and outside-in flow (para 0031 and figures). It would be obvious to one of ordinary skill in the art at the time of invention to use the teaching of Golden in the teaching of Bladden for improved filtration at high flow rates at low pressure (see Golden abstract).

Claim 24: Independent Claim 24 adds the further limitations of a settling process and continuous filtration through a filter membrane in addition to the limitations of claim 1, which Bladden does not teach. Golden teaches settling

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process and filtration through filter membrane (para 0024, 0031 and figures). It would be obvious to one of ordinary skill in the art at the time of invention to use the teaching of Golden in the teaching of Bladden to have gravity settling prior to filtration with the membrane to obtain improved flow rates at low pressure.

Claim 32: Independent claim 32 adds further limitations to the limitations of claim 1. The limitations of Al+3 etc as the coagulants, DADMAC, etc as the polymers, continuous stream and filter membrane are taught by Bladden in view of Golden. Bladden in view of Golden does not teach solid particles collected on the membrane as forming a separate filter, and the flow through the membrane not being significantly reduced. However, it would be obvious to one of ordinary skill in the art at the time of invention that this would be inherent in the process because the references use the same membrane and the same process – *In re King*. Also, the claiming of a new use, new function or unknown property which is inherently present in the prior art does not necessarily make the claim patentable. *In re Best*, 562 F.2d, 1252, 1254, 195 USPQ 430, 433 (CCPA 1977).

Claim 25: Al+3 based coagulant – see Bladden col 5 lines 40-50

Claim 26: DADMAC etc – Bladden col 6 lines 1-18

Claims 27, 33: dwell time is optimizable as explained in claim 16

Claims 28,29 and 34: flow rates of wastewater and treated liquid/solution are equal – optimizable by process flow rates and material balance – *In re Boesch and Slaney*.

Claim 30: solid particles collected on the filter membrane would act as a separate filter and filter out other particles – see claim 32 above..

Claim 31: Flow outside-in – see Golden figures.


### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krishnan S Menon whose telephone number is 571-272-1143. The examiner can normally be reached on 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L Walker can be reached on 571-272-1151. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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